

REMARKS/ARGUMENTS

Current Status

In the Office Action mailed June 24, 2005, claims 1-23 remain pending with:
claims 1,2, 4-8 rejected under 102(e) as being anticipated by Senn;
claim 3 as being rejected under 103(a) over Senn in view of Emery;
claims 9, 10, 13, 14-16 as being rejected under 103(a) over Senn in view of Dunn;
claim 11 being rejected under 103(a) over Senn in view of Dunn and further in view of Emery;
claim 12 being rejected under 103(a) over Senn in view of Dunn in view of Gray;
claim 17 being rejected under 103(a) over Senn in view of Fitch;
claims 18-21 are rejected under 102(e) as being anticipated by De Verteuil;
claim 22 being rejected under 103(a) over Senn in view of Emery; and
claim 23 as being rejected under 102(b) as being anticipated by Sollenberger.

Discussion

Applicant thanks the Examiner for the careful consideration of the claims in light of the prior art and provides the following in response. First, some fundamental distinctions between the prepaid system of Senn and the present invention are discussed, since these distinctions bear on almost all the claims.

Senn discloses “system and methods for prerating communication events, such as telephone calls, for prepaying customers.” (Abstract, emphasis added.) Basically, a communication event (e.g., call) is detected, and “at the beginning of a communication event, the determination of a time limit for the event based on the available balance in a pre-payment account associated with the event.” (Abstract.)

This illustrates the first fundamental difference between a prepay arrangement and the present invention which involves the limitation “determining an amount to be billed for the call.” Prepayment involves the user establishing an account and depositing an amount prior to usage of the service. Such system do not generate a bill. In contrast, credit based systems do generate a bill (which is done in one embodiment of the present invention) and measure usage and determine a bill

after the communication event has completed. Unlike prepay systems, credit based systems do not determine a time limit for the call.

This immediately highlights additional distinctions. In pre-pay systems, a main function of the system is to measure “a duration for that event for which the cost will be approximately equal to a prepaid balance.” (Summary, col. 1, lines 62-63.) Thus, a prepaid system must determine a remaining balance prior to the start of the call, and meter the call with respect to the balance in real time. A prepaid system counts ‘down’ from a maximum call duration.

In contrast, a credit system, similar to the present invention, determines a bill for the call after the call has completed, and does not meter the call’s duration with respect to a pre-existing balance. Rather, a credit system accumulates a balance - it counts ‘up.’ In credit systems, it is only after the call has ended that the duration of the call is then used to calculate an amount, which is then added to the balance, which is used in generating a bill.

Because of the different functions and fundamental operative aspects associated with prepaid compared to billing systems (e.g., credit systems), their interaction of the rating system with respect to the call control and switching systems is fundamentally different. A metering/rating system for prepaid operation is integral to the control of the call. Specifically, when the account is decremented to zero, the prepaid system instructs the call processing system to terminate the call. The switching system is under control of the metering system. In billing systems, the bill calculation can be done off-line, after the call has ended, by a different system, one which typically does not perform billing calculations in real-time, nor which has control over the call in the call processing system.

This leads to an additional distinction – a prepaid system must rate a call in real time. Failure to do so may allow the call to continue after the balance has been decremented to zero. Thus, as stated in Senn, the “service provider may use the prepayment system to regulate the duration of calls handled by service provider 150a, terminating calls when an available balance is depleted.” (Col. 9, lines 43-45.) In contrast, billing systems typically do not bill a call in real time. Rather, information about a call (e.g., duration and applicable rate) can be stored and processed later, by a different system (e.g., a billing or data processing system). See, for example, claim 1 in the present application reciting recording certain data in a call detail record, “transferring the call detail record data file from the mobile switching center to a data processing center; retrieving a rating profile associated with the originating address associated with the mobile telecommunications

device comprising a second antenna identifier and a first billing rate; and determining an amount to be billed for the call.” This is fundamentally different than a real-time control system of the system in Senn.

Another distinction is that a prepaid system can meter the call in a variety of ways, and can define an account balance in terms of time units. For example, a prepaid account may have a certain number of minutes of use remaining, which are decremented in real time for a given call. There may be no conversion to a monetary amount. In contrast, in credit systems, a bill (e.g., monetary amount) is always rendered to the user in a defined currency. An amount due for a call are calculated using time, rates, etc., but the end result is always a monetary amount. Prepaid systems typically limit the calls based on time, which may not even employ a monetary ‘rating’ function.

Other distinctions are readily observable. In prepay systems, an account with a zero balance indicates that a call cannot proceed. In a credit system, an account with a zero balance is a common occurrence – it indicates that a periodic payment has been posted to an account, and the user has entered a new billing cycle.

Thus, Senn is actually non-analogous prior art to the present invention, and its application is not what one skilled in the art would regard as applicable.

With some of these distinctions in mind, the specific rejections of the claims are now addressed.

Independent claim 1, and dependent claims 2, and 4-8

These claims were rejected as being anticipated by Senn. Because Senn discloses a pre-paid metering system, it is inapplicable to a system that defines a method for “billing a wireless subscriber.” Because Senn discloses a prepaid system, it does not disclose “determining an amount to be billed for the call.”

It is alleged that Senn discloses billing a subscriber in column 9, lines 45-51 which states:

When cellular telephone 105 travels to a region serviced by antenna 106, which directs transmission to cellular switch 125 and corresponding service provided 150C, service provider 150A may transfer the communication event to service provider 150C, which uses prepayment system 100C to regulate the duration of calls.”

This states that the prepaid system may terminate or limit the duration of calls, but does not disclose “determining an amount to be billed for the call.” Terminating a call is typical of a prepaid system, but is not associated with credit or billing-based systems. Limiting the time of a call is not the same as determining a bill for the call. Applicant submits that this distinction alone is sufficient to distinguish claim 1 from Senn.

There are additional distinctions. For example, claim 1 recites “retrieving a rating profile associated with the originating address associated with the mobile telecommunications device comprising a second antenna identifier and a first billing rate.” Thus, the claim recites the rating profile comprises a “second antenna identifier and a first billing rate.” The present invention associates a rating profile based, in part, on the particular antenna used by the mobile station. The portion cited in Senn as anticipating this limitation is column 9, lines 13-20, which is reproduced below:

In one embodiment, mobile cellular telephone 105 may travel from a location serviced by antenna 108 to a region service by antenna 106, associated with a second cellular switch 125 and a second service provider 150c. As the transfer occurs, a signal may be sent to system 100 indicative of the change in service provider. Processor 110 may then consult database 170 as described above and determine an updated rate schedule for the call.

This section discloses the well known roaming capability. In order to limit the call for the proper duration in the visiting system, it must consult a database in the home system which has the rate schedule to be used. However, since this is a prepay system, it is still used to determine the duration of the call. This capability does not disclose a rating profile that comprises a “second antenna identifier and a first billing rate.”

The present invention applies a rate that is specific to a particular antenna for that fixed wireless user in a mobile station’s home system. For example, a wireless service provider may offer a subscriber a special rate if the subscriber uses their phone in a specific location (e.g., their house). In such an arrangement, it does not even make sense for the subscriber to get that rate when they are roaming in another system. Consequently, not only does Senn not disclose the limitation of “retrieving a rating profile associated with the originating address associated with the mobile

telecommunications device comprising a second antenna identifier and a first billing rate”, but there is not even a motivation for Senn to incorporate this capability.

This distinction is by itself, also sufficient to allow claim 1 over Senn.

In addition, claim 1 has been amended to recite that the call detail record includes the “ending time” of the call. This means the call detail record cannot be fully formed until after the call has ended, and further distinguishes the claim 1 from Senn.

Because all the limitations in claim 1 are not anticipated by Senn, the 102(e) rejection cannot stand. Further, because dependent claims 2, 4-8 incorporate the limitations of claim 1 by virtue of depending from claim 1, these claims are also patentable over Senn.

Dependent Claim 3

Dependent claim 3 was rejected under 103(a) over Senn in view of Emery. Claim 3 is dependent of claim 1, and for the reasons provided above, claim 3 is patentable over the combination of Senn in view of Emery because Senn does not disclose all the limitations of claim 1.

In addition, Applicant submits that Emery does not disclose the limitation of “wherein the call is packetized data communication.” The “call” (which is what is being billed) is communication from the wireless subscriber to another destination, whether it be another wireless subscriber, information provider, etc. A call is well known to be distinct from the signaling data used to set up the call. The call inherently involves data send from one user to another.

The portion of Emery alleged to disclose that the call is a packetized data communication is the following text from col. 6, lines 15-16:

...then routes the Location ID back out through the Message Processor 206 which places the Location ID into a message packet appropriate for the type of telephony device, and routes it to the Telephone Interface 210 via the Device Interface 207.”

However, continuing with the text, it reads:

The Telephone Interface captures the Location ID and places it into the telephone’s data buffer for use via in-band control channel signaling ...” (col. 6, lines 16-20.)

The point is that while Emery discloses the location information is conveyed using a message packet (or simply a message), Emery discloses signaling information that is transmitted from the mobile station to the base station, not data from two wireless subscribers (e.g., “a call”). Thus, Emery does not disclose the limitation of claim 3, and for this reason and the previous reason, it is submitted that claim 3 is patentable over the combination of Senn and Emery.

Claims 9, 10, 13, and 14-16

Claims 9, 10, 13, 14-16 are rejected under 103(a) over Senn in view of Dunn. Claim 9 is similar to claim 1, and in that regard, many of the reasons provided as to why Senn is non-analogous prior art and does not disclose the limitations of claim 1 apply here as well, and need not be repeated. However, one difference from claim 1 is that claim 9 recites “retrieving a rating profile associated with the originating address comprising a second antenna identifier, antenna sector identifier, and a billing rate.” Thus, in claim 9 the rating profile comprises an antenna identifier, antenna sector identifier, and a billing rate.

The office action has combined Senn with Dunn (col. 3, lines 18-25) alleging that the combination discloses, in part, the above limitation.

Applicant concedes that it is known in the art that antenna cell sites are divided into three sectors as disclosed by Dunn. However, the combination of Senn and Dunn do not result in a rating profile comprising a “second antenna identifier, antenna sector identifier, and a billing rate.” The section referenced in Senn does not disclose a rating profile based on the antenna identifier, let alone with an antenna sector identifier. Further, the combination with the text identified in Dunn still does not disclose the limitations of claim 9, including “retrieving a rating profile associated with the originating address comprising a second antenna identifier, antenna sector identifier, and a billing rate.”

While Senn discloses an antenna, the section cited in Senn (col. 6, lines 18-19) states that “[t]o initiate a call, the cellular telephone 105 may transmit a signal including an identification code, such as a mobile identification number (MIN, or automated number identification code (ANI), of the cellular telephone (105) and a dialed number identification system code (DNIS) to antenna 108, which transmits the signal to cellular switch.”

Applicant admits that transmitting signals to an antenna including the MIN and dialed number were well known, but this text in Senn does not disclose “recording the communication start time, originating address and antenna sector identifier in a call detail record data file stored in the switch” nor does it disclose “retrieving a rating profile associated with the originating address comprising a second antenna identifier, antenna sector identifier, and a billing rate.” In short, Senn does not teach or suggest a rating profile based on a particular antenna, nor would the combination of Dunn disclose the limitation of a rating profile comprising an antenna identifier and the antenna sector identifier.

Applicant submits that the combination of Senn and Dunn does not disclose all the limitations of claim 9, and therefore claim 9 is patentable over the combination of the two.

Further, Applicant notes that the motivation to combine the references is lacking, since Senn is directed to a prepayment system whereas Dunn is directed to a billing (credit) system, and these are fundamentally disjoint and separate paradigms for providing a service to a wireless user. Thus, one skilled in the art would not be motivated to combine these references, since they pertain to mutually exclusive methods for receiving consideration for providing service. Further, the combination of each would render the advantages of each moot, since any system cannot be both a credit and prepaid system at the same time.

Claim 11

Claim 11, which depends on claim 9, was rejected under 103(a) over Senn in view of Dunn and further in view of Emery.

The previous reasons as to why Senn and Dunn are deficient are not repeated, though they the reasons remain applicable. Further, the combination of these references with Emery still does not disclose the limitation of “the communication is an instance of packetized data communication” because the communication cited in Emery (col. 6, lines 15-16) discloses signaling communication, which is not communication that is billed (e.g., a “call”). As previously mentioned, signaling communication is fundamentally different from user communications – signaling information is not billed, while the user communications is billed. The section cited in Emery discloses sending message data on the signaling channel – e.g., signaling data. Thus, Emery does not disclose communications that is billed, which is what claim 11 refers to in claim 9.

Claim 12

Claim 12, which depends on claim 9, was rejected under 103(a) over Senn in view of Dunn in view of Gray. Applicant's previous comments as to why Senn does not disclose all the limitations in claim 9 apply, as do the comments regarding the deficiency of the combination of Senn and Dunn.

Applicant submits that one skilled in the art would not be motivated to combine the references of Senn and Dunn and Gray. Gray pertains to 802.11 based wireless communications, which is a different wireless technology, not traditionally used for cellular systems, nor traditionally billed based on using a particular antenna identifier. As previously stated, Senn pertains to a prepaid system, which is a fundamentally different method of receiving consideration for a credit (a.k.a billing-based) system. There would not have been any reason why one skilled in the art would have combined such technologies which are so fundamentally separate. Specifically, Senn discloses a pre-payment scheme, Dunn discloses a post-payment scheme, and Gray does not disclose a billing scheme at all. There is no motivation to combine them, nor an expectation of success.

Claim 17

Independent claim 17 was rejected under 103(a) over Senn in view of Fitch. Applicant's previous comments regarding the focus of Senn as being a prepay system apply here as well, but are not repeated. Applicant maintains for those reasons, the claim is distinguishable over the combination of Senn in view of Fitch.

In addition, the office action alleges that Senn discloses the following limitation:

recording call detail information for the wireless telephone call in a file stored in a mobile switching center wherein the call detail information comprises the starting time of the wireless telephone call, ending time of the call, originating telephone number, first antenna identifier and first antenna cell sector identifier associated with the call

The text cited in Senn was based on column 6, line 18, which states that a cellular telephone may transmit a signal including the mobile identification number, dialed number "to antenna 108 which transmits the signal to cellular switch 120."

It is well known in the art of mobile telephony that a call being setup involves sending signals via an antenna to a mobile switch. However, the text referenced in the office action simply does not disclose or suggest “recording call detail information”, let alone indicating the antenna identifier and antenna cell sector identifier is recorded.

Claim 17 also recites that a monetary amount is calculated using “using a first billing rate indicated in the rating profile if the first antenna identifier and first antenna sector identifier associated with the call is the same as a second antenna identifier and second antenna sector identifier in a rating profile.” As previously stated, Senn does not disclose calculating a monetary amount, but rather limits the duration of a call based on a credit in an account.

Further, claim 17 recites the “ending time of the call” recorded in the call detail record, which simply does not work with a pre-paid system, since the call detail record is not completely formed until the call is over.

For this reason, Senn does not disclose the limitations as alleged in regard to claim 17, and the combination of Senn and Fitch does not overcome this deficiency. Therefore, it is respectfully submitted that claim 17 is patentable over the combination of Senn and Fitch.

Claims 18-21

Claims 18-21 are rejected under 102(e) as being anticipated by De Verteuil.

De Verteuil discloses a system where an application in a gateway determines whether a more accurate source of location information is needed based on the particular application (Abstract). For example, for some applications, the Cell ID may be used, whereas other applications may require less efficient, but more accurate forms of location determination. (See Summary of Invention). Thus, the MSC (mobile switching center) is not by itself capable of determining whether the location determined is accurate enough (e.g., such as the Cell ID). (“The present invention further involves a recognition that, for many applications of interest, it may be desirable to sequentially use one source of location information and then another, based, for example, on the expected resource requirements or time lag associated with those sources.” Par. 0011). Thus, the switch does not know which form is required – that is the function of the gateway processor 110. (“In order to implement intelligent source selection, the application running on processor 110 compared location information to mobile unit location information. Such location

information may be stored at the gateway platform specified by the requesting application of otherwise made available to the processor 110.” Par. 27).

Thus, the switch is instructed by the gateway processor as to which location determining means is appropriate for the particular application being invoked. This must be determined at the time of the call, since it cannot be done subsequently.

In contrast, in the present invention, the switch automatically records the information recited in the call detail record without any instruction from an external gateway processor. Thus, the claims have been amended to recite that the “the mobile switch automatically recording...” In addition, the “determining the amount due for the call” is performed “after the completion” of the call.” This aspects is not disclosed by De Verteuil, as the switch and determination of the geographical zone is based not “automatically” by the MSC, nor is this determined after the call has terminated.

Claim 20 is not amended, as Applicant submits that De Verteuil does not disclose the limitation “a processor processing the call record file and rating profile file to determine an amount due associated with the call by determining whether the antenna number in the call record file matches the second antenna number indicated the rating profile file, and a third database storing the amount due associated with the call.”

The paragraph cited as disclosing this limitation is paragraph 27 of DeVerteuil. This paragraph states, in part:

The definitions of these locations of interest maybe provided in any suitable form. For example, a service zone for a location-based billing application, assets tracking application or the like may be defined as a set of cell identifiers or cell sector identifiers that represent the service zone.” (emphasis added.)

The following paragraph (Par. 28) states that “a service provider or other person defining a service zone may wish to input service zone boundaries relative to an address, streets or other topological information. ...Thus, service zone definition may be converted from one topological system e.g. addresses or street boundaries to another topological system, e.g. geographical coordinates of cell/cell sector identifiers.”

Thus, De Verteuil discloses uses application defining a service zone, which is defined by certain boundaries – e.g., including cell sector identifiers. Thus, the billing is based on the service

zone. In summary, the application receives a cell sector and associates that with a service zone, which is associated with the billing application. In contrast, the present application bypasses the mapping into a service zone, and the rate is directly determined "by determining whether the antenna number in the call record file matches the second antenna number indicated the rating profile file." This represents increased efficiency and avoids having to define "service zones."

Thus, Applicant submits that claim 20 is not anticipated by DeVerteuil.

Claim 22

Claim 22 was rejected under 103(a) over Senn in view of Emery.

Applicant's previous comments regarding the focus of Senn as being a prepay system apply here as well. Senn discloses a 'prepay' system that does not render a bill to the customer. Senn decrements an existing account in real time having an initial non-zero value, and serves to limit the call. There is no disclosure in Senn of "a billing processor capable of processing a call detail file received from a mobile switching center" because the call detail record is recited in the claim as including the "ending time of the call" which requires the call to be completed. Thus, the billing system receives the call detail record after the call has been completed. Such a system is distinct from Senn, wherein the system processes and rates a call in real time so as to limit the duration of the call as required. Senn could not do so if it received the call detail record after the call is completed. Thus, Senn is deficient for purposes of disclosing at least the aforementioned limitation.

Claim 23

Claim 23 was rejected under 102(b) as being anticipated by Sollenberger.

The operation of Sollenberger warrants further discussion to understand why it does not anticipate claim 23. Sollenberger discloses a method of locating a mobile telephone, via steps of receiving at the mobile phone a control message, and in response the mobile phone transmits a signal at maximum power, which is received at several base stations that then determine the location of the mobile station. (Col. 2, lines 38-54.) Such techniques of locating a mobile phone by measuring signal arrival time at different base stations are well known. Sollenberger calls this process the "location function", (see, e.g., "in the invoking step, a mobile telephone system invokes a location function in response to the signal", col. 2, lines 63-64.)

Sollenberger indicates invoking of the location function can occur at least two ways. First, “the MSC initiates the location function each time a mobile telephone dials 911.” (Col. 5, lines 47.) In addition, “the mobile telephone system provider can offer this location function as a service to its customers.” (Col. 5, line 48-49.) In order to know whether this is to be performed for non-emergency calls, “the MSC 20 can determine whether a location function is required by referring to a user profile stored in the MSC 20 of the location system. For example, a company which uses a fleet of vehicles may want a location function performed each time a call is initiated from one of its mobile telephones.” (Col. 5, lines 54-58.)

Thus, Sollenberger automatically initiates the location function when the caller dials a 911 call. No service profile is required since the MSC always invokes the location function for such calls. For non-emergency calls, a service profile can be used to indicate when the location function is to be performed. For some subscribers, the service profile indicates the location function should be performed for regular (e.g., non-emergency) calls. The location function is based on power level transmissions of the mobile station. (See Abstract).

Consequently, in Sollenberger, the use of the service profile is used as an alternative means of determining when to invoke the location function. Notably, Sollenberger does not disclose the use of a service profile when the caller dials 911 – emergency calls always automatically invoke the location function.

As a side note, location technologies used for wireless users locate a geographical location of the caller. The geographical location are location coordinates – not an address. Typically, an address of the mobile user is never sent (e.g., the user is mobile). On the other hand, wireline (telephone) systems typically do map a caller with an address location where service is provided and send the address information to the public safety access point.

In contrast, in one embodiment of the present invention, the system determines that the call originates from a “fixed location wireless subscriber” and consequently “send[s] the location address to a public safety answering point”. This represents a hybrid arrangement not typical of either wireline or wireless emergency calls.

Note that claim 23 does not recite actually determining the location of the wireless caller via power signal measurements or other means. Rather, the claim recites sending a “location address”, not location information. The fixed wireless subscriber can be presumed to be located at the fixed

address location when they originated the call, since the call originated from an antenna associated with providing fixed wireless service.

With this understanding, it is now apparent that Sollenberger does not anticipate claim 23, and that claim 23 is patentable over Sollenberger.

CONCLUSION

Applicant submits that pending claims 1-23 are patentable over the prior art. Applicant respectfully requests that a Notice of Allowance be granted. Should the Examiner have further questions or comments with respect to examination of this case, it is respectfully requested that the Examiner telephone the undersigned at (404) 873-6429 so that further examination of this application can be expedited.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those provided for in documents accompanying this paper.

Respectfully submitted,



Karl Koster

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Date of Deposit Nov 23, 2005

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